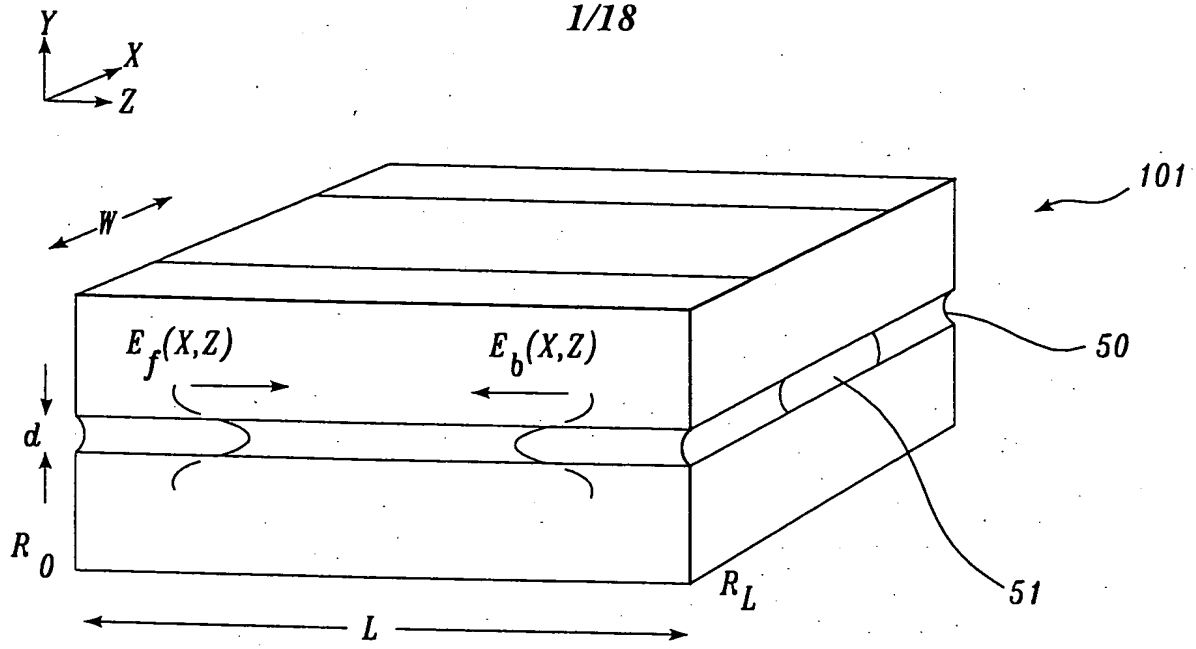

Fig. 1A.

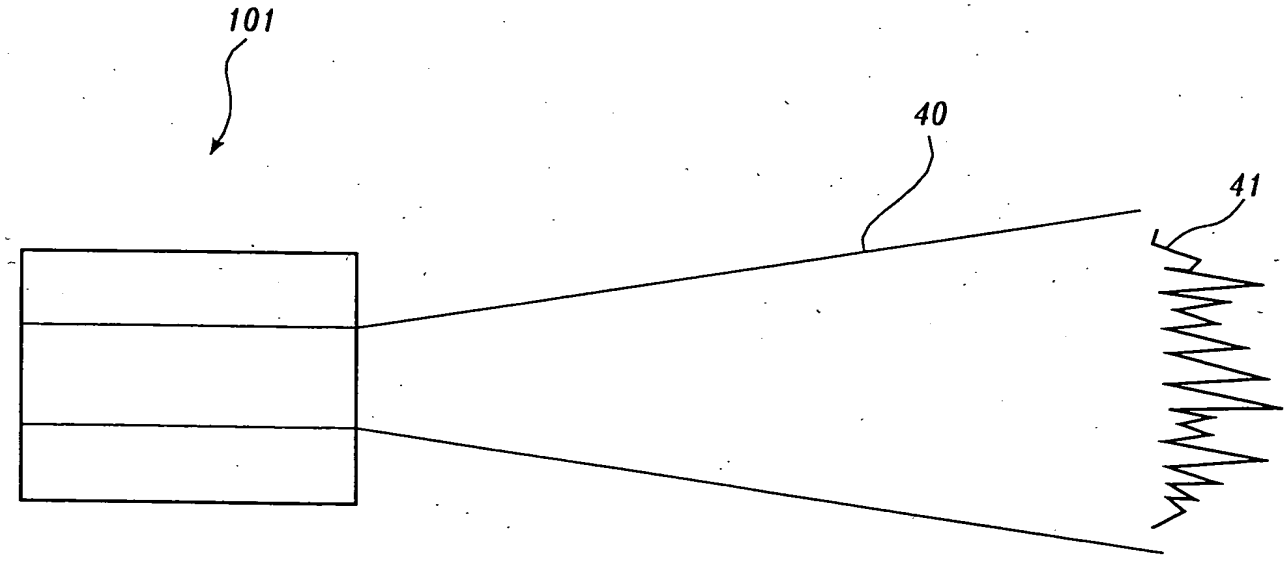

Fig. 1B.

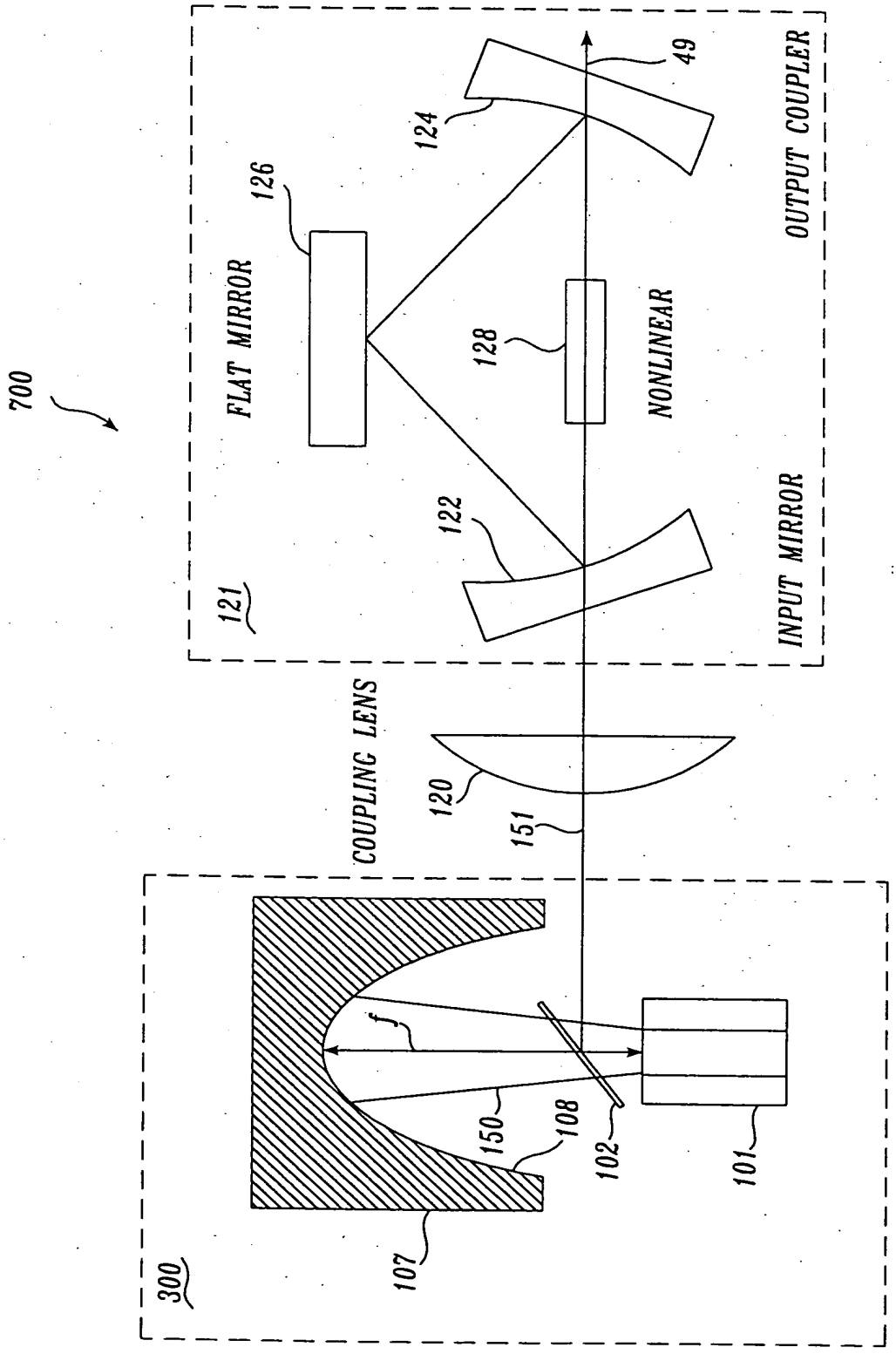
700
FLAT MIRROR
126
124
49
OUTPUT COUPLER
128
NONLINEAR
122
121
INPUT MIRROR
COUPLING LENS
120
151
f
150
108
102
101
107
300

Fig.2A.

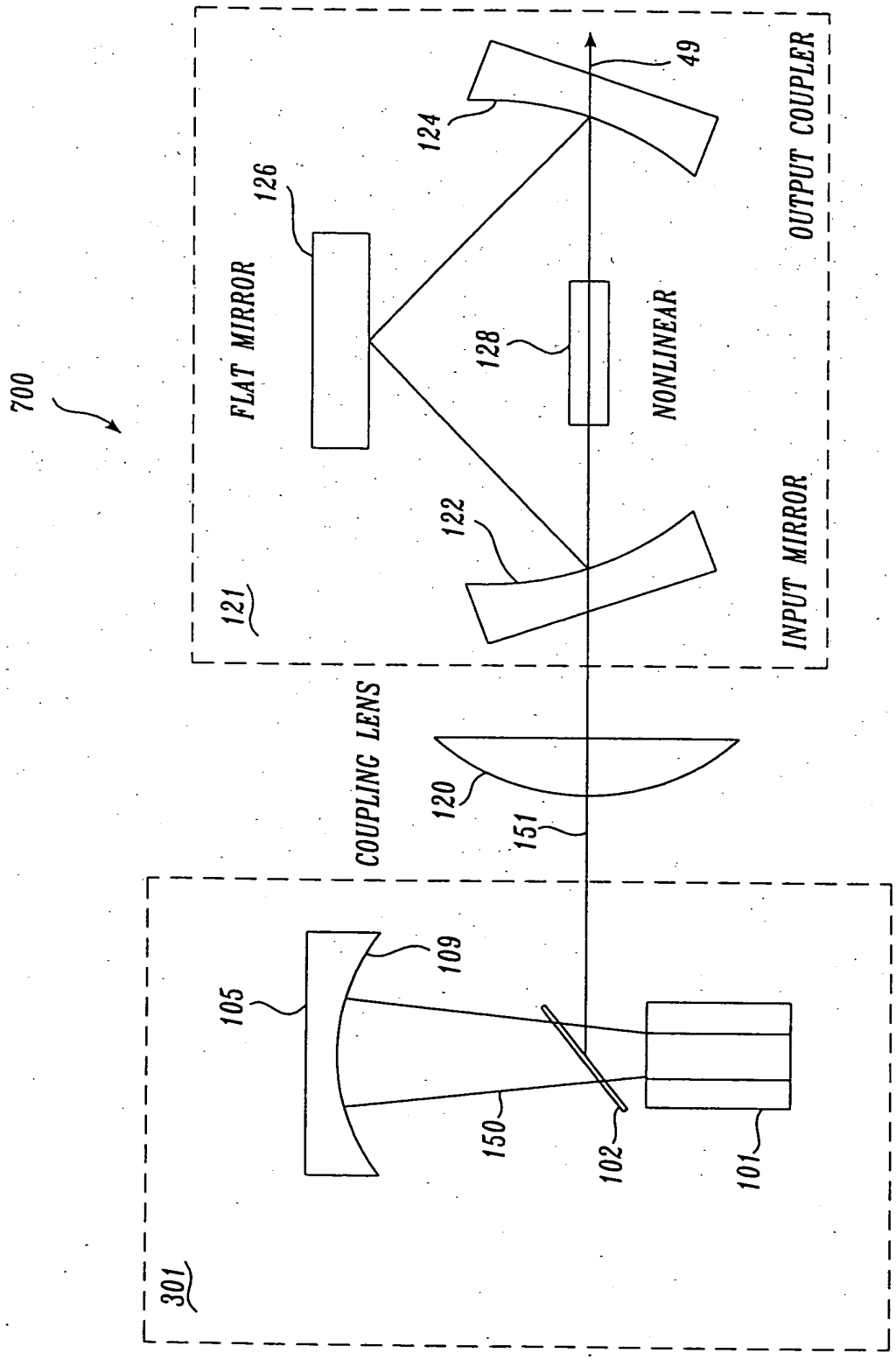
700
FLAT MIRROR
126
124
49
OUTPUT COUPLER
128
NONLINEAR
122
121
INPUT MIRROR
COUPLING LENS
120
151
109
105
150
102
101
301

Fig.2B.

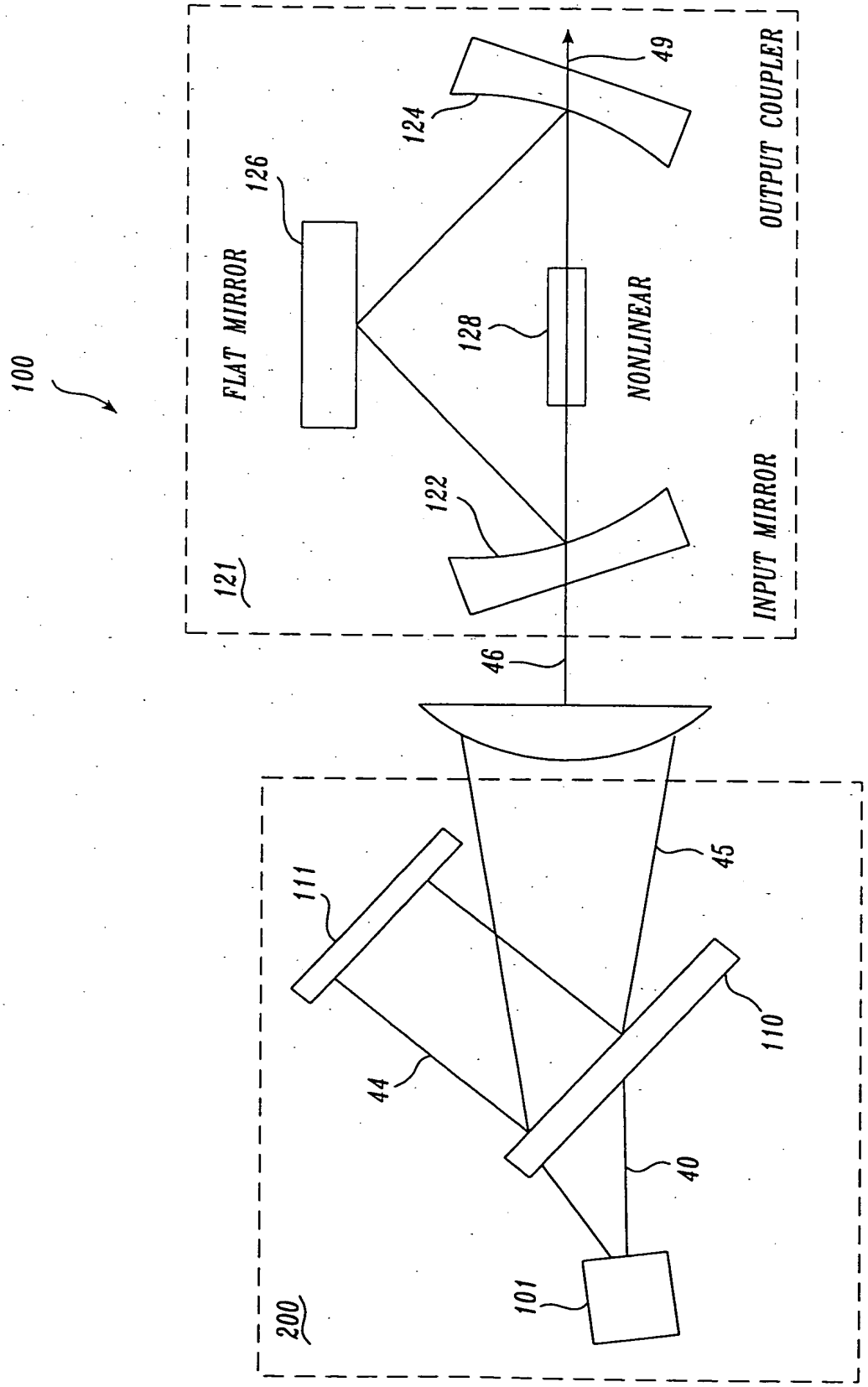
100
121
FLAT MIRROR
126
124
49
OUTPUT COUPLER
128
NONLINEAR
122
INPUT MIRROR
46
111
45
110
44
40
101
200

Fig.3.

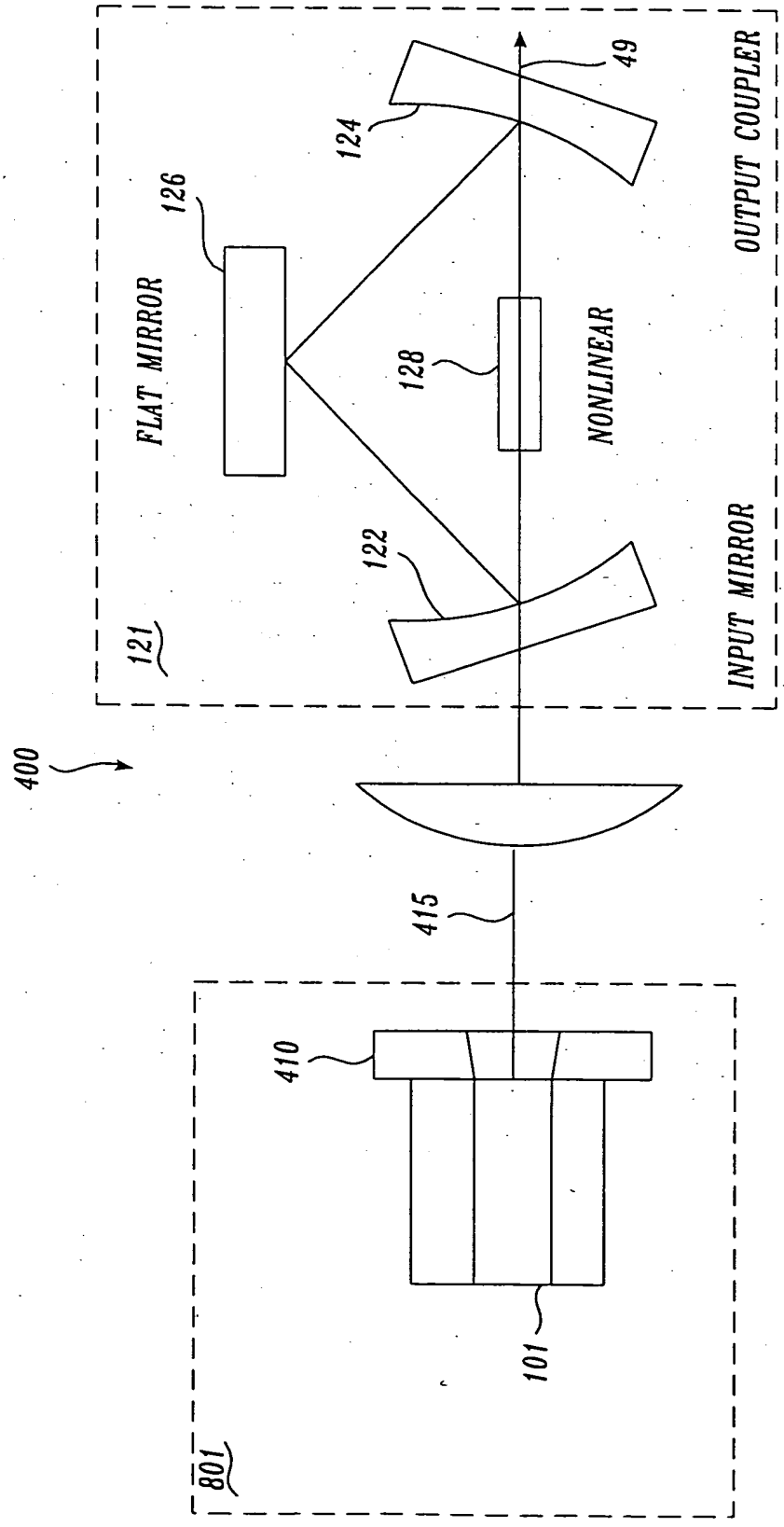
OUTPUT COUPLER
49
124
126
FLAT MIRROR
128
NONLINEAR
122
INPUT MIRROR
121
400
415
410
101
801

Fig. 4.

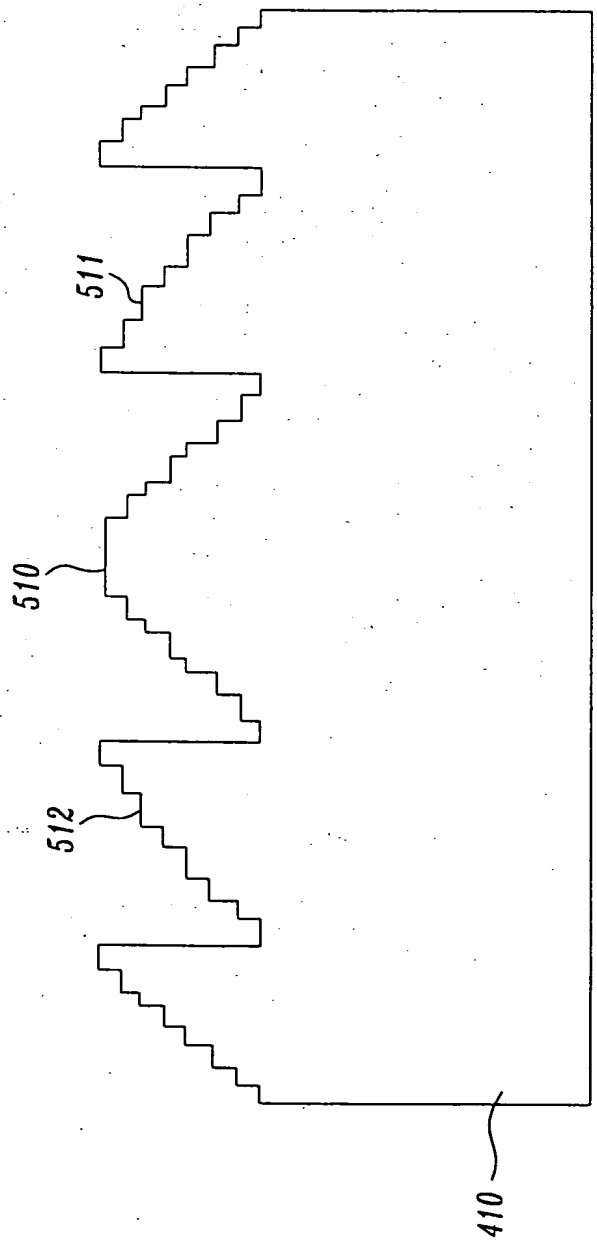

Fig.5.

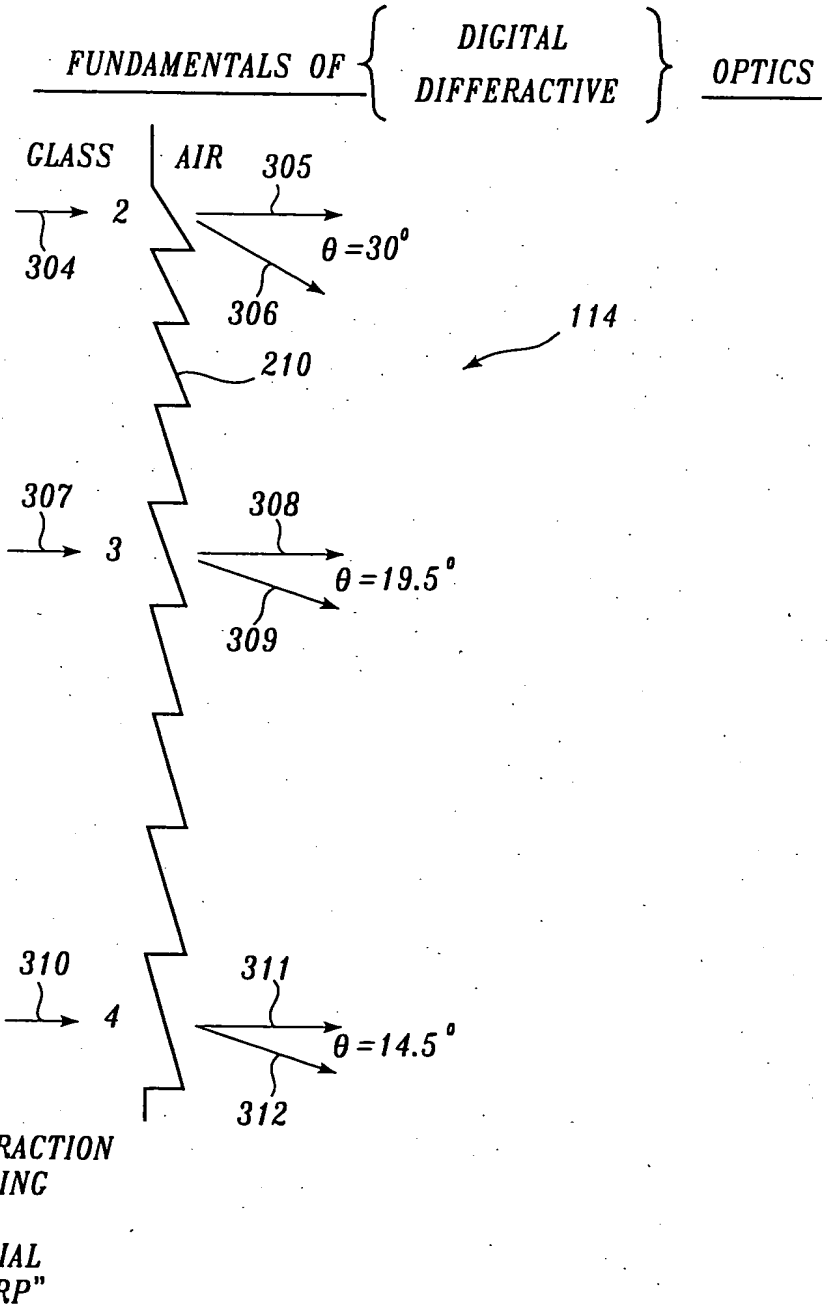
FUNDAMENTALS OF
DIGITAL
DIFFERACTIVE
OPTICS
GLASS
AIR
305
2
θ =30°
304
306
114
210
307
308
3
θ =19.5°
309
310
311
4
θ =14.5°
312
DIFFRACTION GRATING WITH SPATIAL "CHIRP"

Fig. 6.

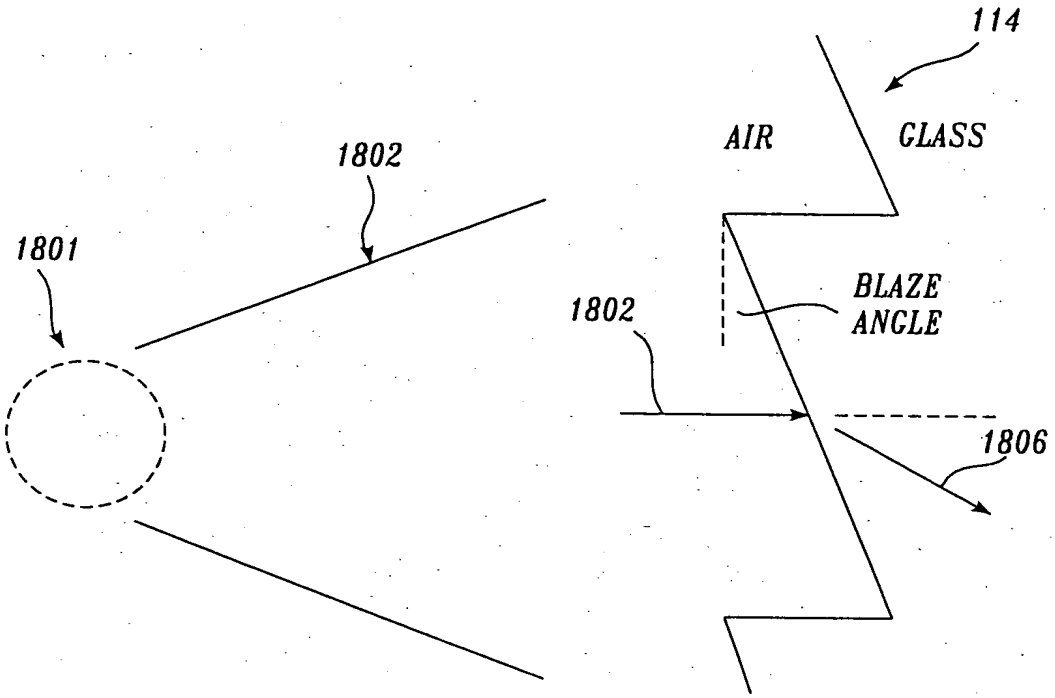
114
AIR
GLASS
1802
1801
BLAZE
ANGLE
1802
1806

Fig. 7A.

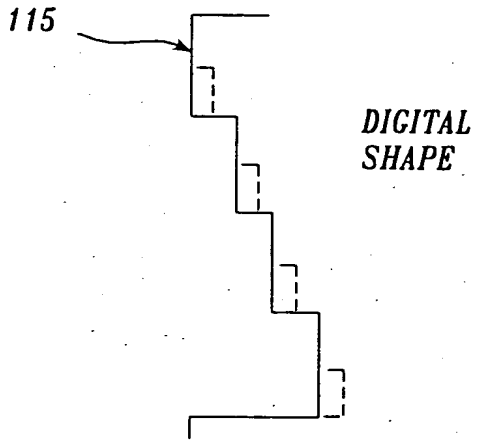
115
DIGITAL
SHAPE

Fig. 7B.

PHYSICAL QUANTITY	SYMBOL	VALUE
LASER WAVELENGTH	λ	980 nm
GAIN REGION LENGTH	L	250 μm
CONTACT STRIPE WIDTH	w	100 μm
ACTIVE LAYER THICKNESS	d	1 μm
TRANSVERSE CONFINEMENT FACTOR	Γ	0.2
FACET REFLECTIVITIES	$R_0 R_L$	0.05
EFFECTIVE INDEX	n_{eff}	3.5
KERR COEFFICIENT	n_2	0.0
LINEWIDTH-ENHANCEMENT FACTOR	α	3.0
INTERNET LOSS	α_{int}	$1000m^{-1}$
GAIN CROSS SECTION	α	$1.5 \times 10^{-20} m^2$
DIFFUSION CONSTANT	D	$0.0033 m^2/s$
TRANSPARENCY CARRIER DENSITY	N_0	$1.0 \times 10^{24} m^3$
NON-RADIATIVE LIFETIME	τ_{nt}	5ns
SPONTANEOUS-EMISSION COEFFICIENT	B	$1.4 \times 10^{-16} m^3/s$

Fig. 8.

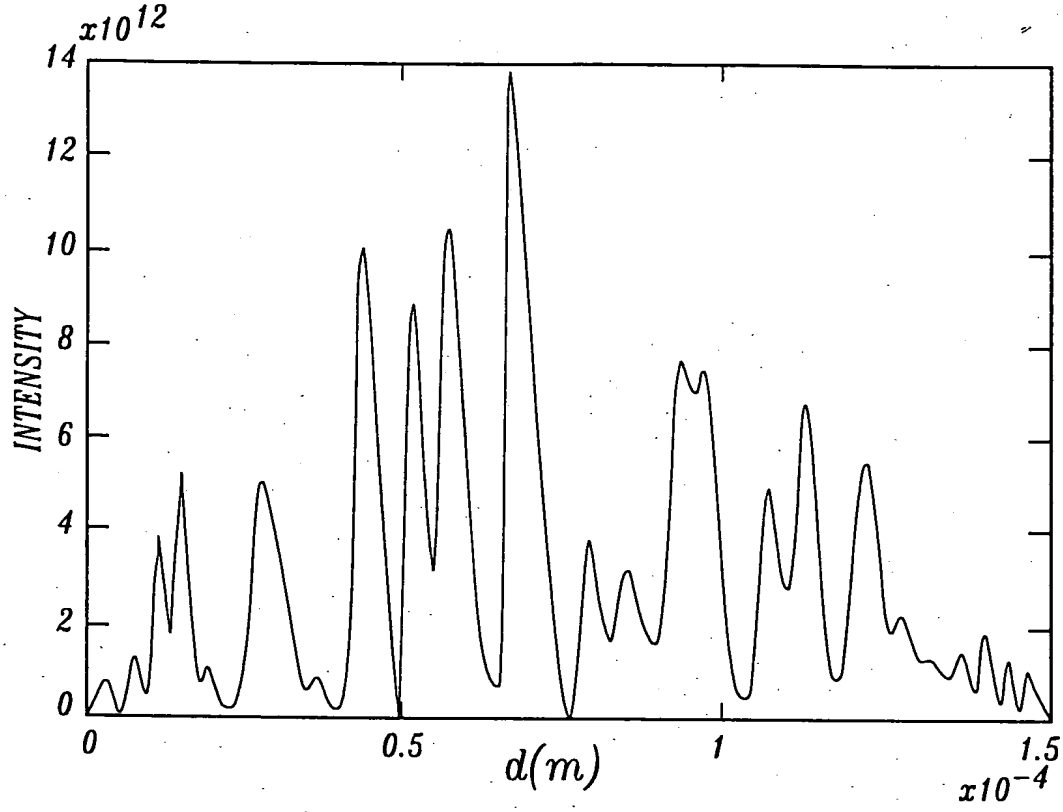
x10^12
14
12
10
8
6
4
2
0
INTENSITY
0
0.5
1
1.5
d(m)
x10^-4

Fig. 9.

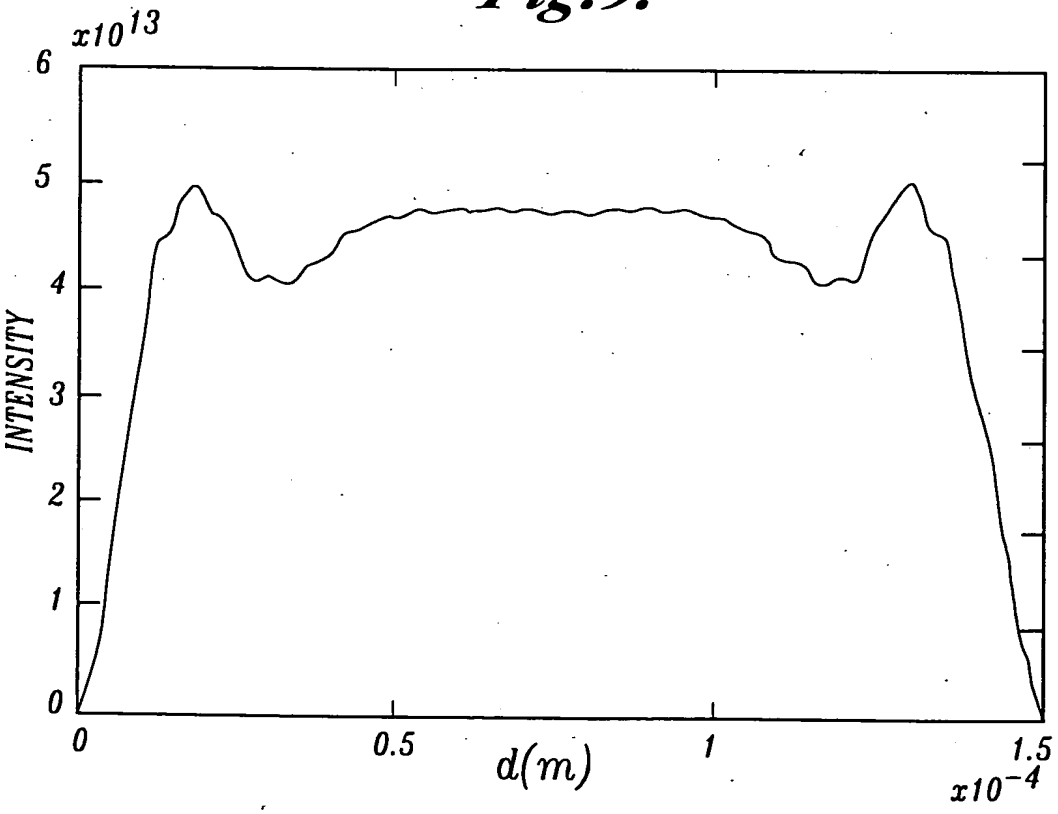
x10^13
6
5
4
3
2
1
0
INTENSITY
0
0.5
1
1.5
d(m)
x10^-4

Fig. 10.

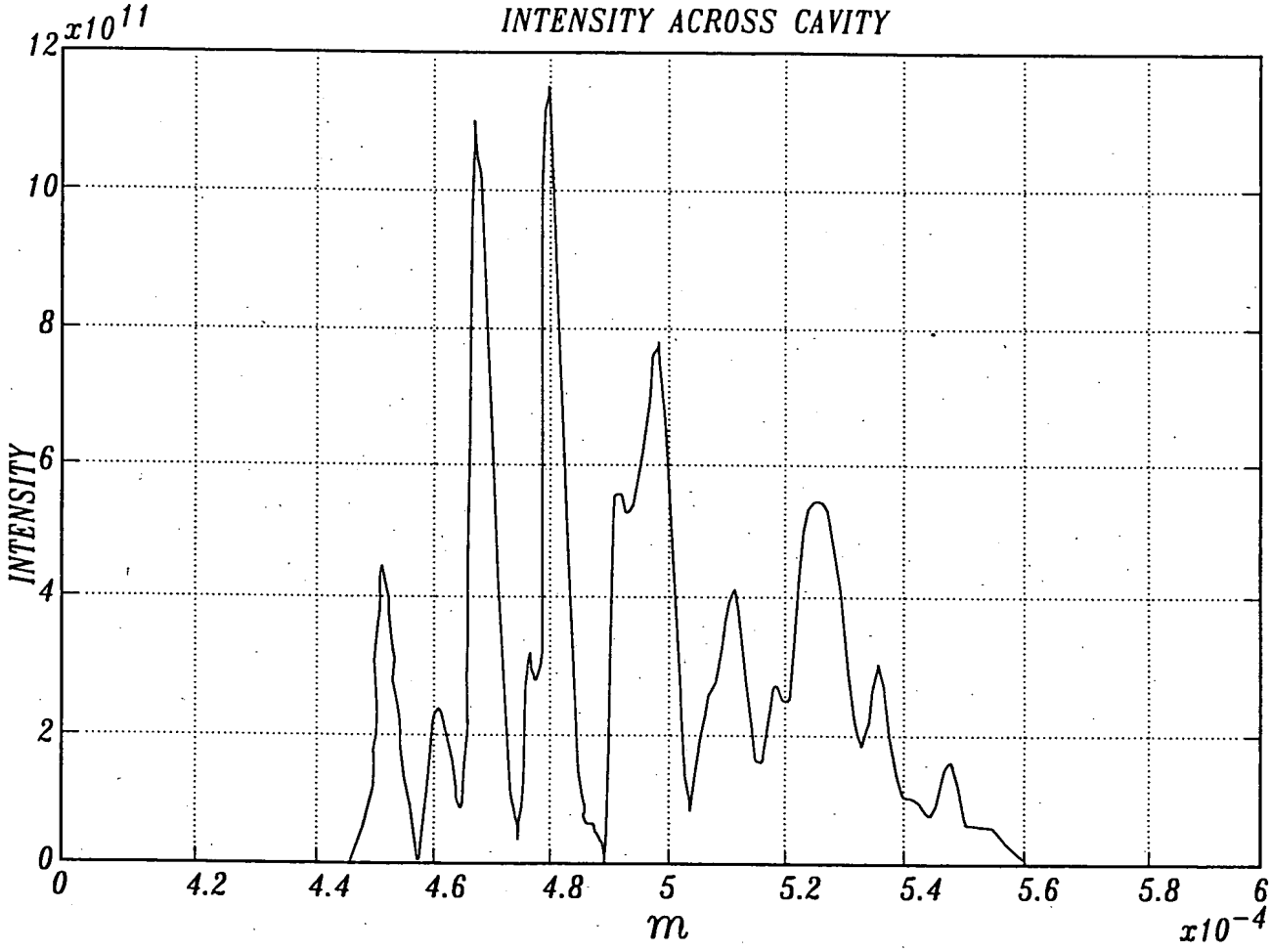
INTENSITY ACROSS CAVITY
x10^11
12
10
8
6
4
2
0
INTENSITY
0
4.2
4.4
4.6
4.8
5
5.2
5.4
5.6
5.8
6
m
x10^-4

Fig.11.

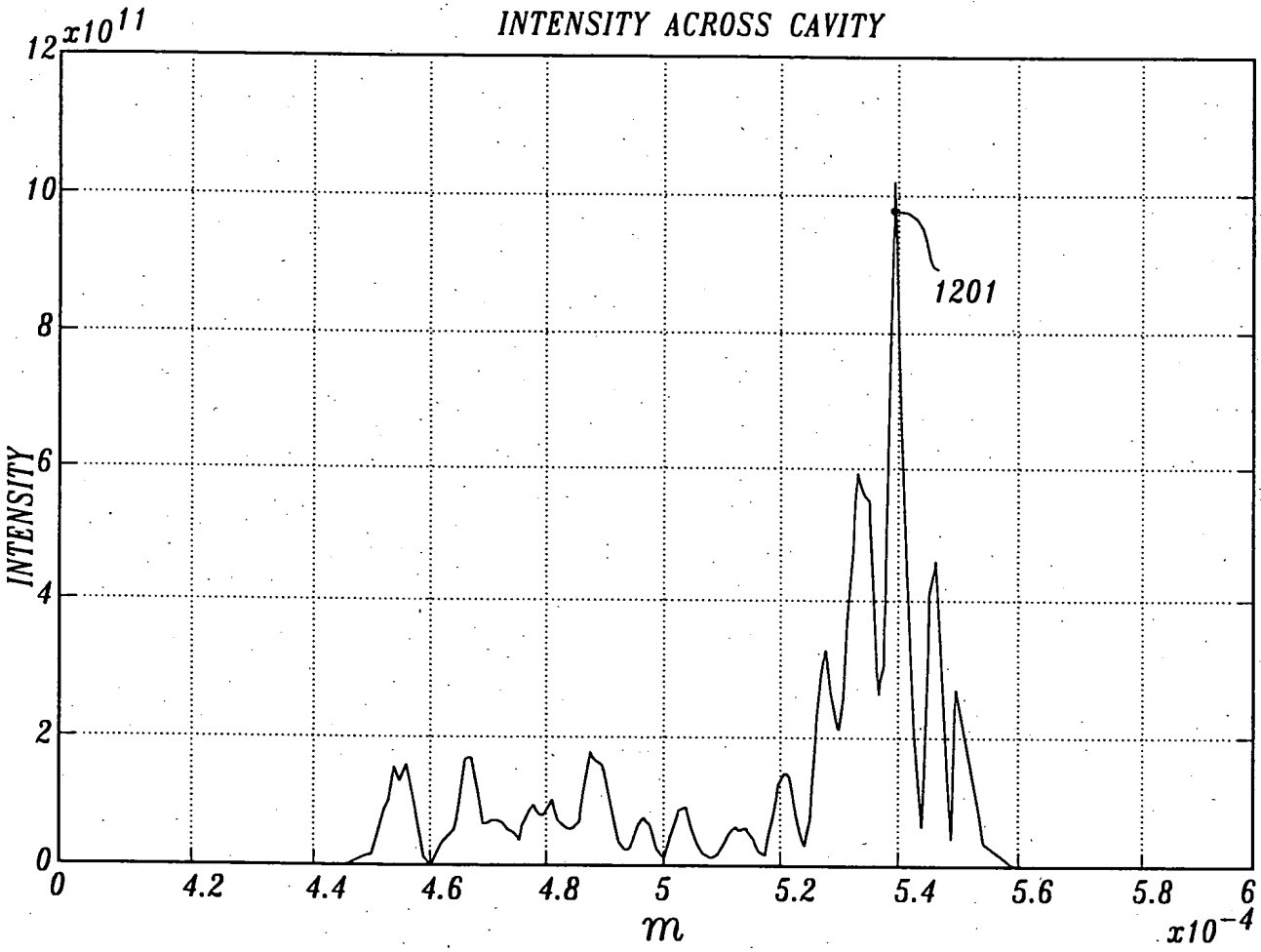
INTENSITY ACROSS CAVITY
12 x10^11
10
8
6
4
2
0
INTENSITY
1201
0
4.2
4.4
4.6
4.8
5
5.2
5.4
5.6
5.8
6
m
x10^-4

Fig.12.

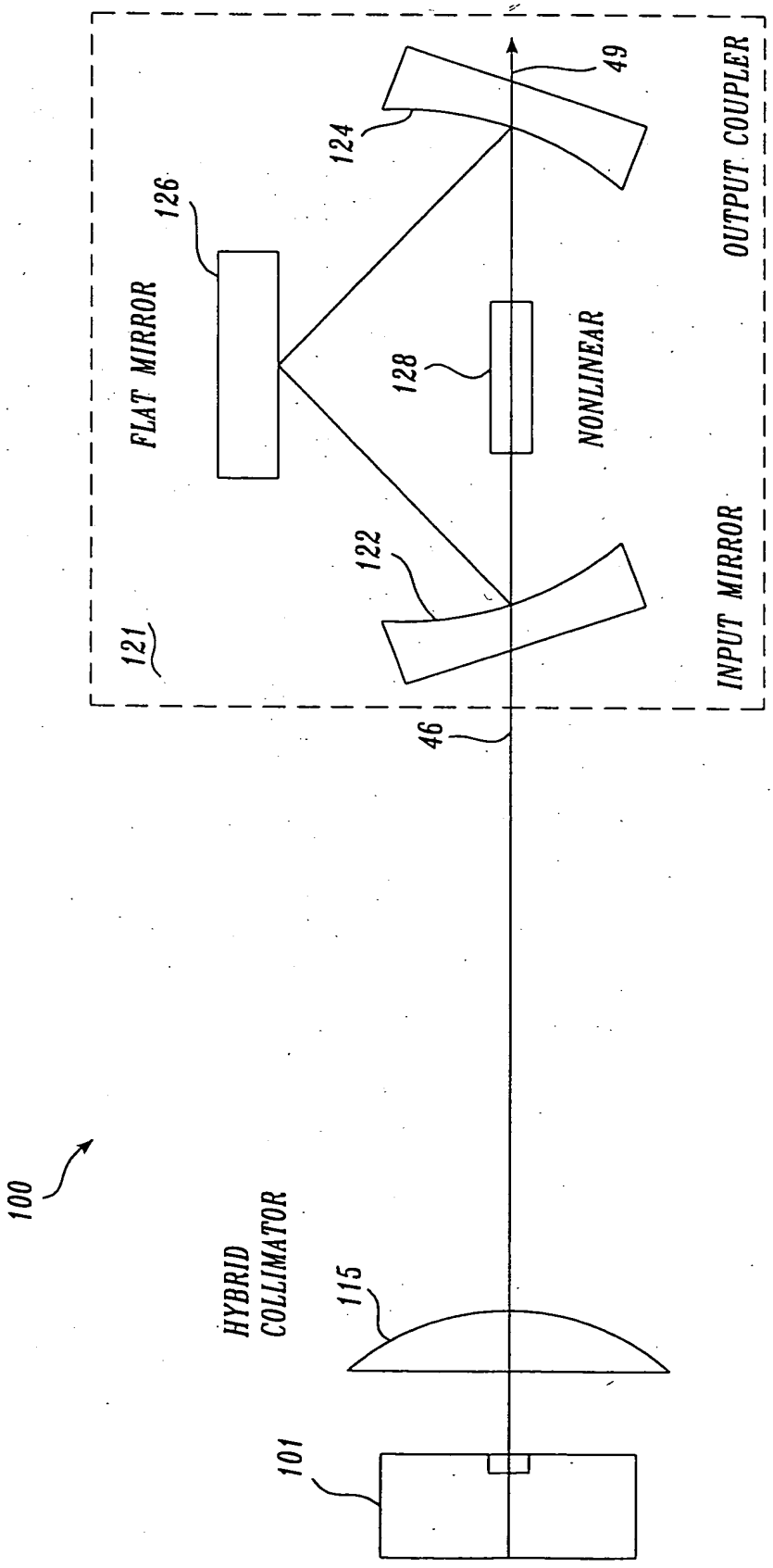
100
HYBRID COLLIMATOR
115
101
46
121
FLAT MIRROR
126
124
49
OUTPUT COUPLER
128
NONLINEAR
122
INPUT MIRROR

Fig. 13.

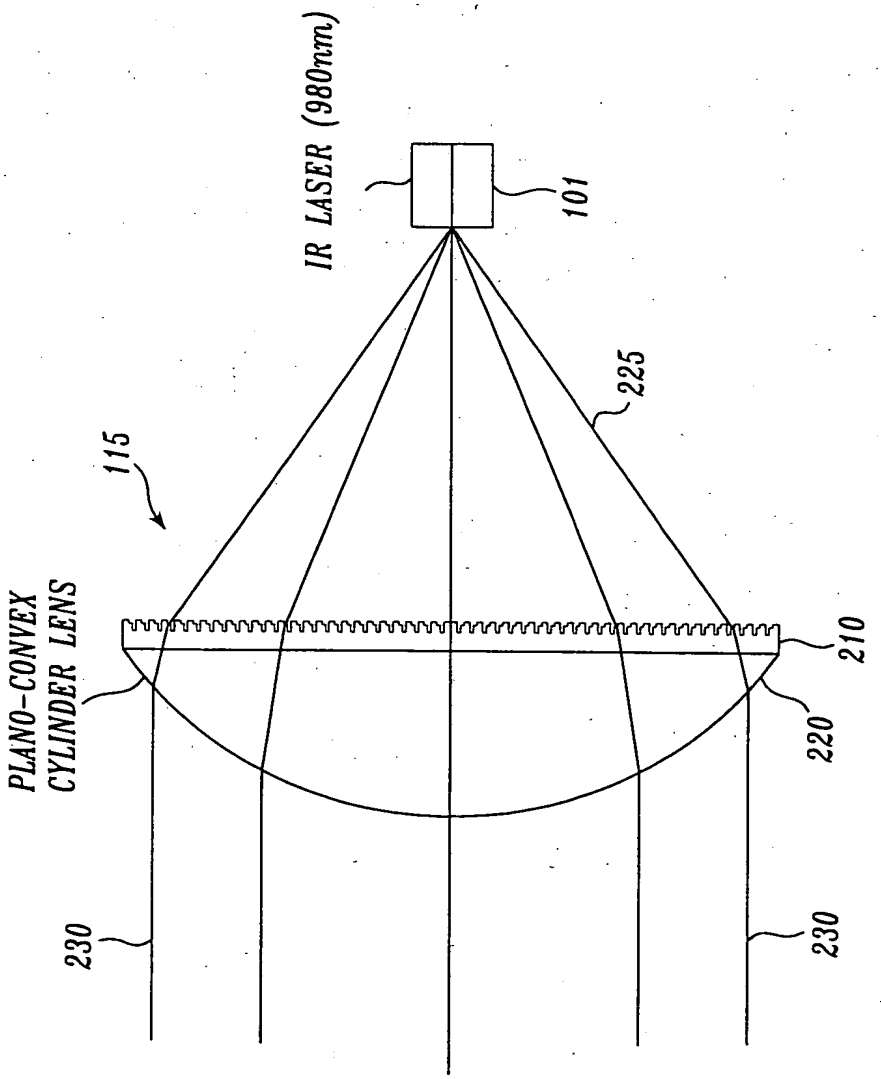
IR LASER (980nm)
101
225
115
PLANO-CONVEX CYLINDER LENS
210
220
230
230

Fig. 14.

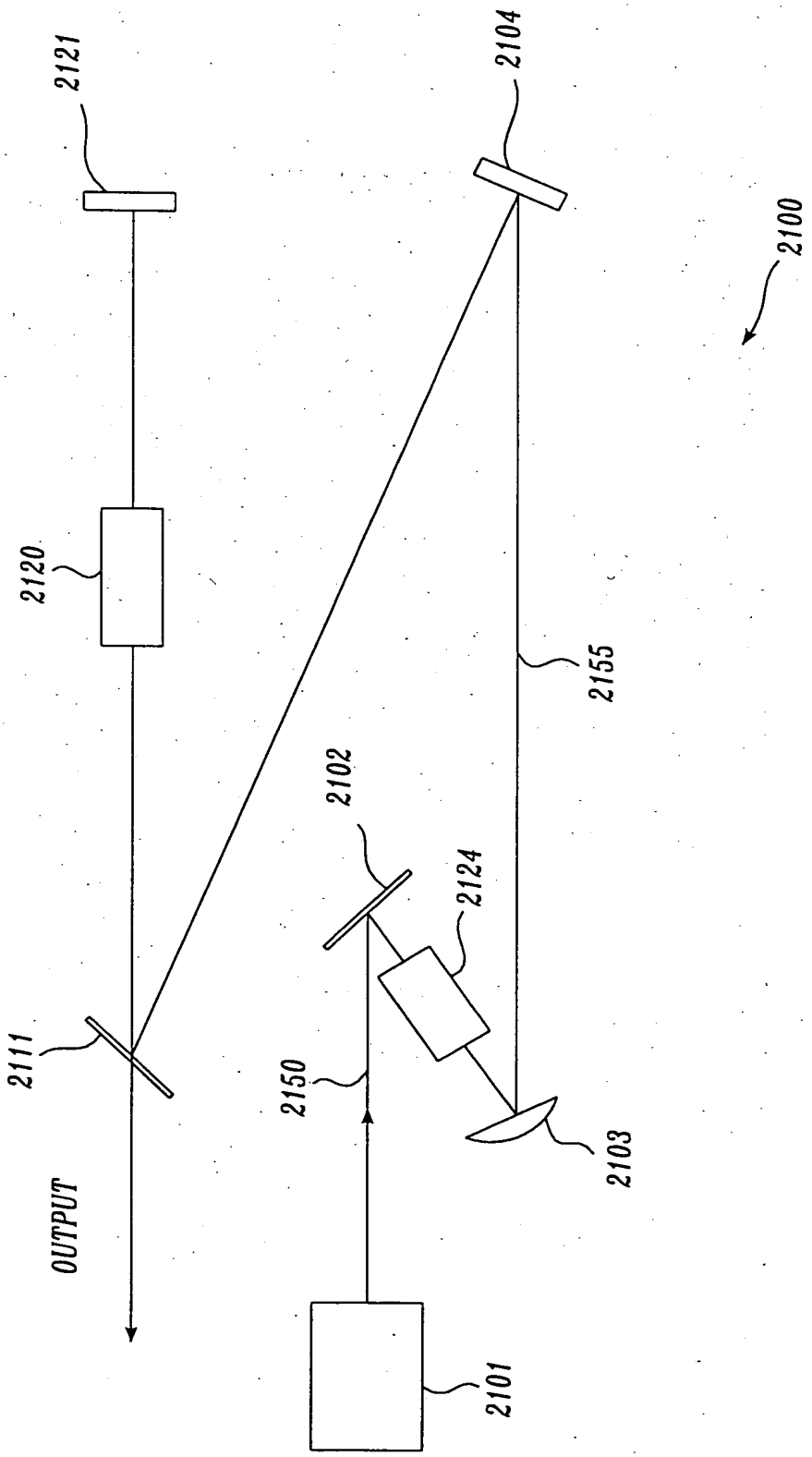
2121
2104
2100
2120
2155
2102
2124
2111
2150
2103
OUTPUT
2101

Fig.15.

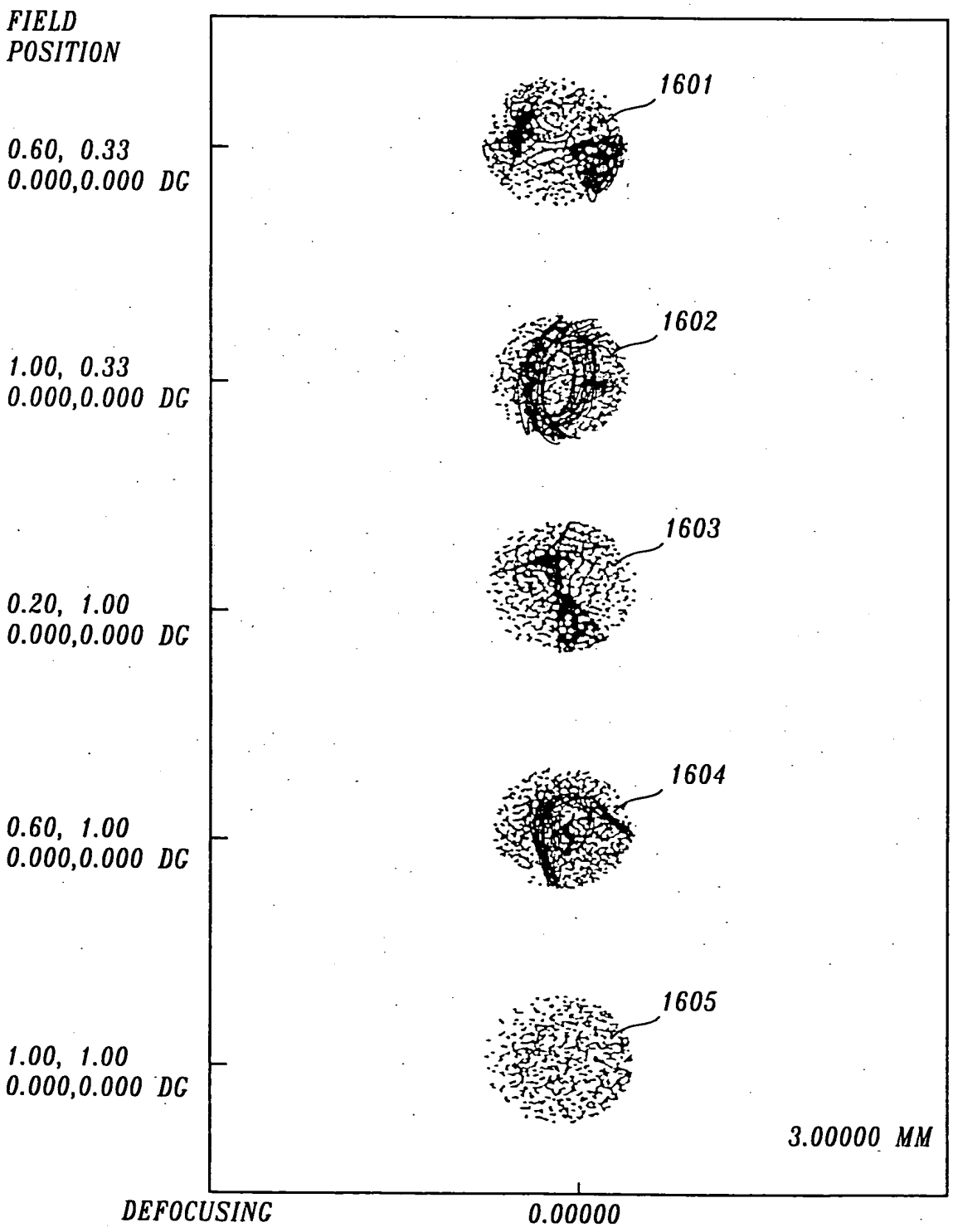
FIELD POSITION
0.60, 0.33
0.000,0.000 DG
1.00, 0.33
0.000,0.000 DG
0.20, 1.00
0.000,0.000 DG
0.60, 1.00
0.000,0.000 DG
1.00, 1.00
0.000,0.000 DG
1601
1602
1603
1604
1605
3.00000 MM
DEFOCUSING
0.00000

Fig. 16A.

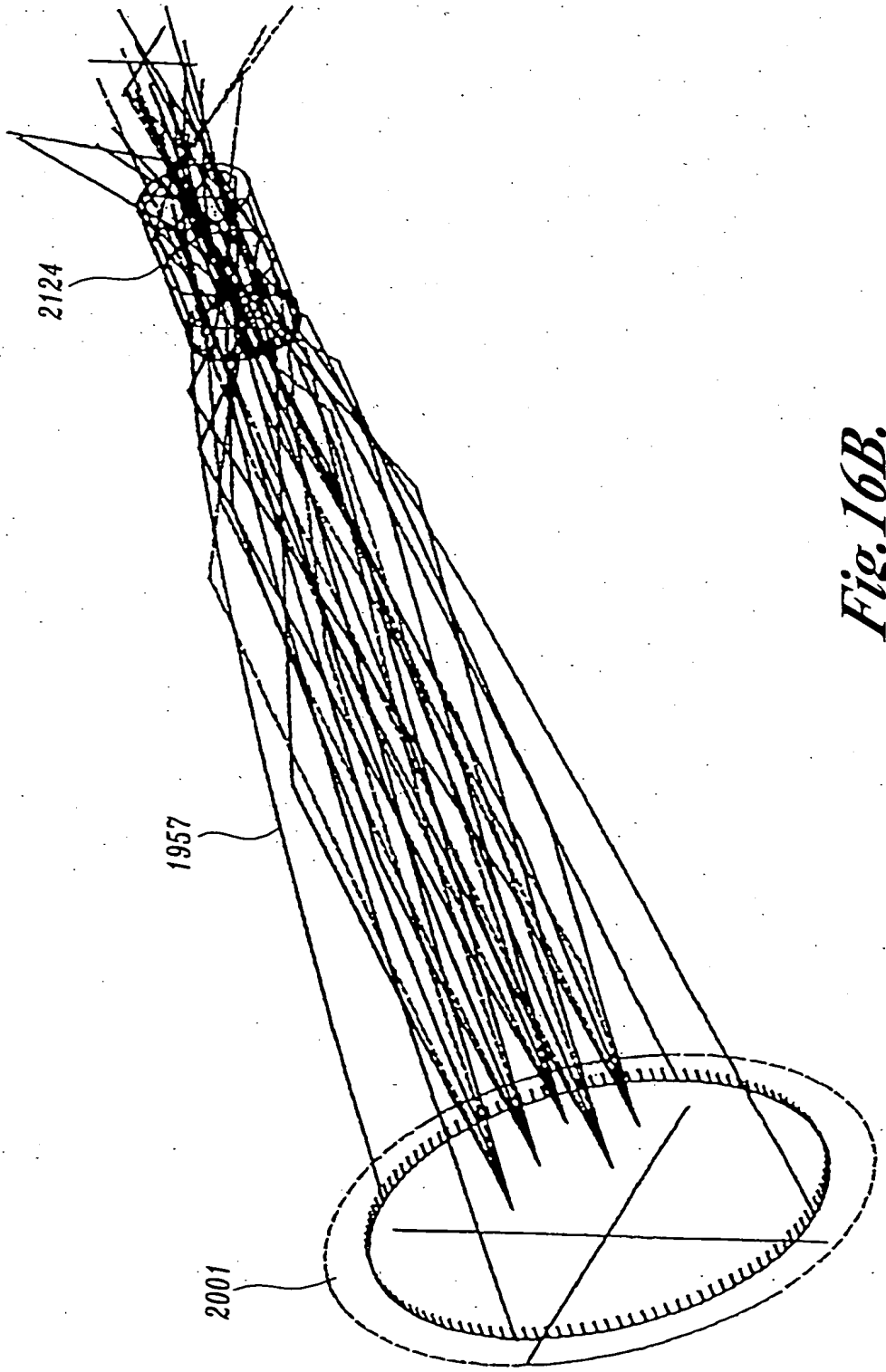

Fig.16B.

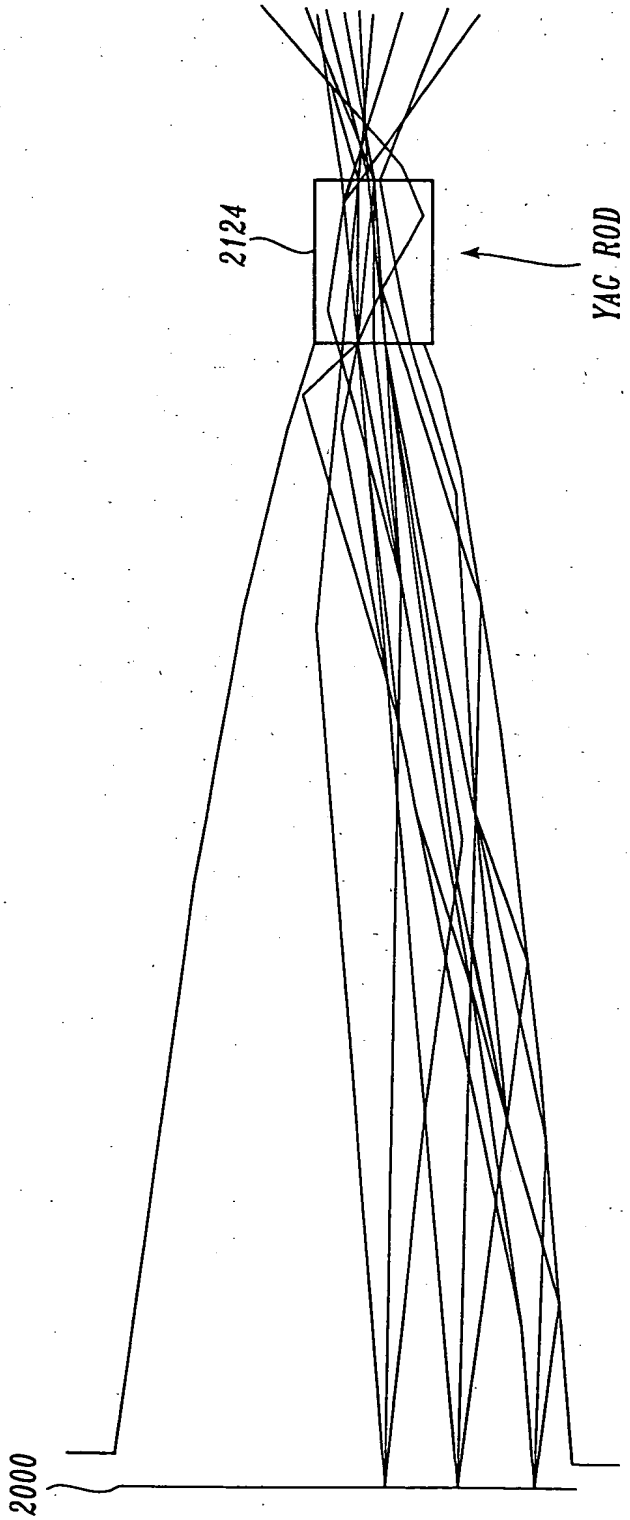

Fig.16C.